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## Seventh Semester B.E. Degree Examination, July/August 2021 Mechatronics

Time: 3 hrs.

Max. Marks: 80

**Note: Answer any FIVE full questions.**

1.
  - a. Define Mechatronics, give its origin. (04 Marks)
  - b. Briefly describe proximity sensor. (08 Marks)
  - c. Explain with the sketch photo emissive transducers. (04 Marks)
  
2.
  - a. Define following terms:
    - (i) Accuracy.
    - (ii) Resolution.
    - (iii) Response time
    - (iv) Setting time. (08 Marks)
  - b. Explain the working principal of Hall Effect sensor and its application in fluid level detection with a sketch. (08 Marks)
  
3.
  - a. What is microprocessor? Explain its role in mechatronics. (04 Marks)
  - b. Differentiate microprocessor and micro controller. (04 Marks)
  - c. Explain with a block diagram the following with respect to general form of microprocessor system:
    - (i) Databus
    - (ii) Control bus
    - (iii) Address bus (08 Marks)
  
4.
  - a. With the help of block diagram of 8085 A processor architecture. Explain terminologies related to it. (12 Marks)
  - b. Write a note on classification of microcontroller. (04 Marks)
  
5.
  - a. With help of neat sketch, explain pneumatic actuators. (08 Marks)
  - b. Write a note on functional requirement of Robot. (08 Marks)
  
6.
  - a. List and explain different parts of Robot controller. (08 Marks)
  - b. What is PLC? Explain with neat sketch basic structure of PLC. (08 Marks)
  
7.
  - a. Sketch and explain the working of stepper motor. (08 Marks)
  - b. Explain briefly the following solid state devices which can be used to electronically switch circuits:
    - (i) Diodes
    - (ii) MOSFET. (08 Marks)
  
8.
  - a. With the help of neat sketch, explain working principle of DC motor. (08 Marks)
  - b. What is a mechanical actuator? List the various types of mechanical actuators. (08 Marks)
  
9.
  - a. With a neat sketch, explain ball type check valve. (08 Marks)
  - b. Explain briefly meter-out circuit. (08 Marks)
  
10.
  - a. Explain briefly meter-in circuit. (08 Marks)
  - b. With neat sketch, explain pressure compensated flow control valve. (08 Marks)